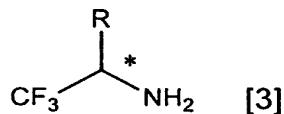


CLAIMS

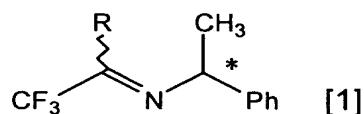
1. A process for producing an optically active 1-alkyl-substituted 2,2,2-trifluoroethylamine represented by the formula [3],

5 [Chem. 18]



[in the formula R represents a lower alkyl group of a carbon number of 1 to 6 and * represents an asymmetric carbon] or its salt by subjecting an optically active imine represented by the formula [1],

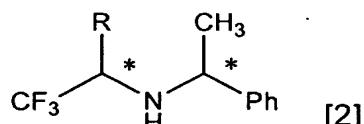
10 [Chem. 16]



[in the formula R represents a lower alkyl group of a carbon number of 1 to 6, Ph represents a phenyl group, a wave line represents E configuration or Z configuration, and * represents an asymmetric carbon] to an asymmetric

15 reduction under hydrogen atmosphere using a metal catalyst of Group VIII to convert it into an optically active secondary amine represented by the formula [2],

[Chem. 17]



20 [in the formula R represents a lower alkyl group of a carbon number of 1 to 6, Ph represents a phenyl group, and * represents an asymmetric carbon] and then by subjecting the secondary amine or its salt to hydrogenolysis.

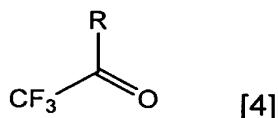
2. A production process according to claim 1, which is characterized in

25 that the asymmetric reduction is conducted under a temperature condition of not higher than 10°C.

3. A production process according to claim 1 or claim 2, wherein R of the optically active imine represented by the formula [1], the optically active secondary amine represented by the formula [2] and the optically active 5 1-alkyl-substituted 2,2,2-trifluoroethylamine represented by the formula [3] is a methyl group.

4. A production process according to any one of claim 1 to claim 3, wherein the optically active imine represented by the formula [1] is an optically 10 active imine obtained by subjecting a trifluoromethyl alkyl ketone represented by the formula [4]

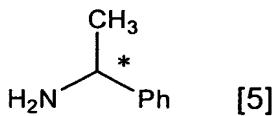
[Chem. 19]



[in the formula R represents a lower alkyl group of a carbon number of 1 to 6]

15 and an optically active 1-phenylethylamine represented by the formula [5]

[Chem. 20]

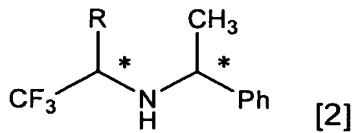


[in the formula Ph represents a phenyl group, and * represents an asymmetric carbon] to dehydration and condensation in the presence of an acid catalyst.

20

5. A purification process characterized in that an optically active secondary amine represented by the formula [2]

[Chem. 21]



[in the formula R represents a lower alkyl group of a carbon number of 1 to 6, Ph represents a phenyl group, and * represents an asymmetric carbon] is converted into its salt, followed by a recrystallization purification.

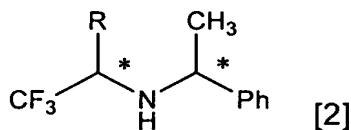
5 6. A purification process according to claim 5, wherein R of the optically active secondary amine represented by the formula [2] is a methyl group, and the salt is hydrobromide.

7. A purification process according to claim 5, wherein R of the optically active secondary amine represented by the formula [2] is a methyl group, and the salt is optically active 10-camphorsulfonate.

8. A process for producing an optically active 1-alkyl-substituted 2,2,2-trifluoroethylamine represented by the formula [3] or its salt, according to any one of claim 1 to claim 4, which is characterized in that, after an optically active secondary amine represented by the formula [2] is obtained by a production process according to any one of claim 1 to claim 4, the secondary amine is purified by a purification process according to any one of claim 5 to claim 7.

20

9. An optically active secondary amine represented by the formula [2] [Chem. 22]



[in the formula R represents a lower alkyl group of a carbon number of 1 to 6, Ph represents a phenyl group, and * represents an asymmetric carbon].

10. An optically active secondary amine according to claim 9, wherein R of the optically active secondary amine represented by the formula [2] is a methyl group.

11. A hydrobromide of the optically active secondary amine according to claim 9, wherein R of the optically active secondary amine represented by the formula [2] is a methyl group.

5 12. An optically active 1-camphorsulfonate of the optically active secondary amine according to claim 9, wherein R of the optically active secondary amine represented by the formula [2] is a methyl group.